REMARKS/ARGUMENTS

Claims 1-20 are pending. Claims 1-9, 11 and 12 were examined in the Office Action. Claims 10 and 13-20 are currently withdrawn.

Claim 1 is clarified by removing the term "polar groups as solubilizing functionalities or."

Claim 6 is clarified by removing the term "polar groups as solubilizing functionalities or."

Anticipation

The rejection of claims 1, 2, 6, 7, 11 and 12 as anticipated by Sirringhaus (U.S. Pat. Appl. Pub. No. 2003/0059975) is respectfully traversed. The reference does not describe every feature of the claims.

Current claims 1 and 6 recite that the water soluble cationic conjugated polymer comprises pendant solubilizing groups linked to the conjugated polymer (for example, see the R groups of PFON-$(CH_3)_3\Gamma$-PBD on page 29 of the published parent PCT application WO 2005/056628).

In contrast, Sirringhaus does not describe such polymers. Sirringhaus describes the use of PEDOT:PSS in water or water/alcohol for the formation of one layer, followed by the application of a thiophene (P3HT) or dithiophene (F8T2) polymer in an anhydrous mixed xylenes solution for the formation of the next layer (see paragraphs [0105] and [0106]). As shown in the attached printout from Wikipedia, PEDOT:PSS does not have pendant solubilizing groups linked to a conjugated polymer. The PEDOT conjugated polymer portion does not have pendant groups, while the PSS portion is not a conjugated polymer and is not a pendant group of PEDOT. PEDOT:PSS is a macromolecular salt, not a conjugated polymer with pendant solubilizing groups.

As for P3HT and F8T2, these are not water soluble cationic polymers.

Because Sirringhaus fails to teach or suggest all features of claims 1, 2, 6, 7, 11 and 12, the claims are not anticipated.

Obviousness

The rejection of claims 3, 4, 5, 8 and 9 as obvious over Sirringhaus in view of Hsu (U.S. Pat. Appl. Pub. No. 2003/0222250) or Yu et al. (U.S. Pat. Appl. Pub. No 2004/0094768) is respectfully traversed. The combination of references fails to describe the features of the claims.

As describe above, Sirringhaus fails to teach or suggest the use of a cationic water soluble conjugated polymer comprising pendant solubilizing groups linked to the conjugated polymer. Hsu and Yu et al. fail to remedy this deficiency. Hsu (see paragraph [0016]) and Yu et al. (see paragraph [0055]) describe conjugated polymers, but like PEDOT:PSS described in Sirringhaus, the polymers do not contain pendant solubilizing groups linked to a conjugated polymer.

Moreover, Hsu and Yu et al. describe sulfonic acid-containing polymers, which are anionic not cationic polymers. Because the combination of references fails to teach or suggest the subject matter of the claims, claims 3, 4, 5, 8 and 9 are not obvious.

Other Applications

The examiner is reminded of the following patents and applications for consideration of any double patenting issues: a) Appl. Serial No. 11/221,123; b) Application Serial No. 11/221,026 c) US Patent No. 7,830,085; d) US Patent No. 8,076,842; e) US Patent No. 7,144,950.

In view of the foregoing amendments and remarks, Applicants submit that the present application is in condition for allowance. A Notice of Allowance is therefore respectfully requested.

A Petition for a 1 month extension of time is hereby requested, and the fee is submitted herewith.

No other fee is believed due. However, the Commissioner is hereby authorized during prosecution of this application and any related appeal, to charge any fees that may be required (except for patent issue fees required under 37 CFR §1.18) or to credit any overpayment of fees to Deposit Account No. 50-3881, under Order No. 1279-454. If an extension of time is required in connection with this paper, please consider this a Petition therefor and charge any fees required to Deposit Account No. 50-3881, under Order No. 1279-454.

Dated: February 13, 2012

Respectfully submitted,

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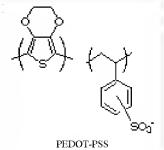
Attachment: Printout from Wikipedia describing PEDOT:PSS

PEDOT:PSS

PEDOT:PSS or **Poly(3,4-ethylenedioxythiophene) poly(styrenesulfonate)** (see figure) is a polymer mixture of two ionomers. One component in this mixture is made up of sodium polystyrene sulfonate which is a sulfonated polystyrene. Part of the sulfonyl groups are deprotonated and carry a negative charge. The other component poly(3,4-ethylenedioxythiophene) or **PEDOT** is a conjugated polymer and carries positive charges and is based on polythiophene. Together the charged macromolecules form a macromolecular salt.



PEDOT-PSS

It is used as a transparent, conductive polymer with high ductility in different applications. For example, AGFA coats 200 million photographic films per year with a thin, extensively-stretched layer of virtually transparent and colorless PEDOT:PSS as an antistatic agent to prevent electrostatic discharges during production and normal film use, independent of humidity conditions.

If high boiling solvents like methylpyrrolidone, dimethyl sulfoxide, sorbitol are added conductivity increases many orders of magnitude which makes it also suitable as a transparent electrode, for example in touchscreens, organic light-emitting diodes and electronic paper to replace the traditionally used indium tin oxide. Due to the high conductivity (up to 1000 S/cm are possible), it can be used as a cathode material in capacitors replacing manganese dioxide or liquid electrolytes.

This compound is generally applied as a dispersion of gelled particles in water. A conductive layer on glass is obtained by spreading a layer of the dispersion on the surface usually by spin coating and driving out the water by heat. Special PEDOT:PSS inks and formulations were developed for different coating and printing processes. Water based PEDOT:PSS inks are mainly used in slot die coating, flexography, rotogravure and inkjet printing. If a high viscous paste and slow drying is required like in screen-printing processes PEDOT:PSS can also be supplied in high boiling solvents like propanediol. Dry PEDOT:PSS pellets can be produced with a freeze drying method which are redispersable in water and different solvents, for example ethanol to increase drying speed during printing. Finally, to overcome degradation to ultraviolet light and high temperature / humidity conditions PEDOT:PSS UV-stabilizers are available.

Commercially available PEDOT:PSS products are produced by Heraeus with the trade name Clevios and by AGFA with the trade name Orgacon.

Article Sources and Contributors

PEDOT:PSS *Source*: http://en.wikipedia.org/w/index.php?oldid=469349475 *Contributors*: Bob Saint Clar, ChemGardener, Icp123, KatBru, Kkmurray, Maddoc1, Materialscientist, Mion, OrganicSolar, Pyrochem, R'n'B, Shaddack, Squids and Chips, TFJamMan, V8rik, Yaco, 12 anonymous edits

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